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Drought impact evaluation and perception model: a systems approach in Turkana County, Kenya

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Abstract: This paper presents the analysis drought in Turkana County, Kenya. It takes a closer look at the challenges and focuses on the quantitative dimensions of Turkana households' livelihoods. Then it gives an overview of the impact of droughts in the study area so as to enable us to appreciate the difficult economic conditions Turkana people goes through: conditions which they are forced to grapple with on their own before they receive any livelihood support from the Kenya government and external donors. This is followed by an analysis of Turkana people's environmental perception and an interpretation of their economic predicament. The paper lies on key informants' interview data and survey of extensive literature.

Key words: Drought impacts, perception and identity crisis

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I. EFFECTS DROUGHTS IN TURKANA.

The Turkana District has experienced a long history of drought conditions leading to famine and, to a large extent, poverty (Swift 1985; Turkana Drought Contingency Unit 1992). Generally, poverty research has also revealed characteristics which are widely shared among poor people and their families. There is a consensus that, poverty is caused by a variety of socio-economic, political and environmental factors, and poverty has fundamentally to do with deprivation (Chambers 1995; Hettne 2002). Ellis (2000) argue that, the most fundamental of these characteristics may be lack of assets, meaning lack of ownership or access to land, other productive assets, skills, education, and wealth. Although the available climatic data held in Kenyan government offices suggests that the period 2005-2006 did not represent a particularly severe drought as compared to the 1979-1980 droughts (Republic of Kenya 2006), the Turkana people interviewed regard its effects as having been harsh. 91 percent of the pastoralists interviewed stated that the 2005-2006 droughts were the worst they remembered, and though this may be partially explained by the fact that it was the most recent, it does indicate that its impact was great. To get a clear picture of how the local people were affected during this period, all the respondents were asked to name the problems they faced during that period.

While the responses revealed specific problems, it became obvious that the 2005-2006 drought was a period of general social malaise and unrest in the area. Apart from lack of food, which was experienced by all the respondents, respondents also mentioned lack of water, loss of livestock, loss of human lives and conflict over resources. Due to the fact that respondents mentioned a myriad of problems, it may be true that there could be other ways of determining the impact of 2005-2006 droughts, but in this study, "livestock losses" and "human losses" were used as the measuring tool.

1.1 Livestock losses in the household.

While analyzing the livestock losses during the 2005-2006 droughts, it was necessary to take into account the number and size of herds prior to the drought, as it was vital for comparison purposes. The traditional strategy of pastoralists is to build up the numbers of livestock in good years in anticipation of the losses which will occur during drought. A herder will attempt to enter the period of drought with enough animals to enable him to provide for subsistence needs during the crisis despite animal deaths.

For the Turkana case, computation of the data reveals that before the 2005-2006 droughts, each of the 80 households studied owned an average of nine cattle, 11 sheep and goats, two camels and two donkeys (see Table 1). However, these numbers were still below the minimum livestock units that pastoral households require to resist drought cycles. This may partially explain why the Turkana people were more vulnerable. Household heads explained that they had less stock prior to the 2005-2006 droughts and famine because the drought condition under study occurred just before they were sufficiently recovered from the 2000 drought. Respondents stressed that there was also foot and mouth disease which affected the cattle during 2004 leading to loss of some livestock.

Table 1: pre-drought livestock numbers

Cattle		Goats and sheet	Camels	donkeys
Total No. of livestock	742	869	154	156
Number of livestock per household	9.3	10.9	1.9	2

Source: Fieldwork data, 2007

Further explanation from respondents is that the number of sheep and goats taken together were very low per family because just before the 2005-2006 drought, the number of goats had been drastically reduced by an outbreak of contagious Caprine Pleuroneumonia (CCPP).

Table 2: post-drought livestock numbers

Cattle		Goats and sheet	Camels	donkeys
Total No. of livestock	343	377	152	53
Number of livestock per household	4.3	4.7	1.9	0.7

Source: Fieldwork data, 2007

As shown in Table 2, after the 2005-2006 drought, each family surveyed had an average of 4.3 cattle, 4.7 sheep and goats, 1.9 camels, and 0.7 donkeys each. These figures suggest that 53.8 percent of the pre-drought family cattle, 56.9 per cent of the sheep and goats, 0 percent of the camels and 65 per cent of the donkeys died (see Table 3). Respondents explained that this loss had a major impact on their livelihood since they depend solely on livestock for meat, milk, blood, hides and skin, other by-products, and for payment of bridewealth and bloodwealth.

The greatest deficit was in the number of cattle, sheep and goats. Respondents pointed out that the loss in goats and sheep seriously worsened their situation, since goats and sheep are the most important source of food in a period of drought when the milk production of cows decreases. This is because goats are primarily browsers and thus expected to survive during dry conditions. It also seems logical to rely on browsing animals for economic use, as the rangeland is often covered by bushes and trees. Furthermore, the great loss in goats and sheep may be interpreted to mean that the dry conditions were more difficult than what was reported in government documents.

Table 3: Livestock Survival/ Death Rates

Cattle		Goats and sheet	Camels	donkeys
Pre-drought herds per family	9.3	10.9	1.9	2
Post-drought herds per family	4.3	4.7	1.9	0.7
Livestock death per household	5	6.2	0	1.3
Survival rate (%)	46.2	43.1	100	35
Death rate (%)	53.8	56.9	0	65

Source: Fieldwork data, 2007

As depicted in Table 3, only 46.2 percent of cattle, 43.1 percent of goats and sheep, and 35 percent of donkeys survived. All camels, however, survived. Most respondents explained that this was a great loss, considering the fact that they had very few livestock following the impact of the 2000 drought and famine. The data also show that 100 percent of camels survived, and informants explained that camels, unlike other animals, were able to survive for a long period of time without water. Respondents were in agreement that, had the drought conditions continued to the year 2007, the situation would have become much more serious. They maintained that even with the favourable conditions which began in January 2007, it was still very difficult for Turkana households to rebuild their herds and fulfil their subsistence needs thereupon. This, indeed, was the case, and at the time of the survey (February 2007 – July 2007), the livelihood situation was still very unstable.

However, it is important to note that the difficulty in obtaining accurate and reliable information about livestock numbers in Turkana is legendary, and some care should therefore, be taken of the numbers shown as some respondents seemed to have been in the habit of exaggerating losses from the drought in the hope of receiving larger and more frequent relief rations. Secondly, the Turkana nomads never count their stock, and some thought they may be cursed if they uttered the correct number. One informant stated: "to count stock would be to challenge fate" (Key Informant Interview, Morulem Village 9th February 2007). It was as a result of a gentle and careful probing that any figures were obtained at all. They should be interpreted with equal caution. However, these figures give a clear idea as to the magnitude of the 2005-2006 droughts.

One important point needs to be noted concerning cattle loss during 2005-2006 droughts. In the case of the Turkana, as in similar disaster situations world over, an extraordinary contradiction (Dirks 1980: 21-23) emerges in which wealth can be seen in juxtaposition to human misery. The drought had varied degrees of stress down to the household level. Some households were struck more severely than others. Apart from the varied responses to the survey questions which recorded both 'total' loss and some 'loss', a visitor to a Turkana village would have wondered why it had been found necessary to feed many in the Ngisonyoka territorial section on famine relief food. Between 7am and 9pm daily, it was baffling to find a herd of anything up to a hundred healthy cattle roaming along the Kitale – Lodwar road and in the countryside, as if this was one of the best years in the history of Turkana pastoralism. Since the contradictions were so obvious, all the three key informants and 80 household heads interviewed were asked who owned these herds – those seen in the countryside along the road. They gave varied answers which generated three different explanations.

The first explanation from the respondents was the argument that those stock belonged to the destitute who moved in search of famine relief food. They said that the stock which had survived the drought had been brought together by the owners who formed small corporate groups. As the owners moved to look for famine relief food, the livestock was left in the hands of a few specialized herders to whom payments in the form of relief food is sent from time to time.

The second claim was that this stock belonged to pastoralists who had been only mildly affected by the drought. The respondents argued that these were pastoralists who had been lucky to occupy hilly pastures during the drought and used them selfishly at the exclusion of others. They did not find it necessary to move in search of famine relief foods and continued to live in the countryside even at the time of the study. On the defense of pastures during periods of prolonged droughts, Philip Gulliver writes:

Some years ago when rainfall had been unusually poor for two years consecutively, dry-season grasslands on Pelekec Mountain failed before the dry season ended, and most cattle had to be moved. Some went west to parts of Muruapolon, some north-west to Thungut, Mogila and the Dodoth Escarpment, and some north, to Lokwanamur. In most cases men were able to go to areas where they had bond-friends or kinsmen. One group, however, attempted to move en block to Naitamajong. Following early brawling, a serious fight occurred, and some serious injuries were incurred on both sides. The "invaders" retired, split up and separately found entrance elsewhere. Naitamajong, the nearest mountain to stricken Pelekec, had suffered almost equally badly, and the men there were genuinely afraid of the grave consequences if more stock came to graze there" (Gulliver 1955: 35).

From the historical observation above, it could be possible that some Turkana people had access to better pastures than their less fortunate colleagues and, thus, saved quite a large portion of their pre-drought family herds. However, one needs more substantive evidence before making an authoritative conclusion on this claim about selfish defense of pastures as a survival strategy. The literature on pastoralism excludes mention of the role of vigorous physical defense of pasture leading to violence.

The more vocal third claim was that the stock one saw in the countryside belonged to the rich salaried, those who are firmly integrated into the modern sector of the economy and thus use their salaries and various forms of non-pastoral sources of income to accumulate livestock. This claim supports Henriksen's findings that the rich livestock owners in the Turkana District are the teachers, politicians, businessmen, and civil servants who rely marginally on their herds for subsistence (Henriksen 1974). Those who like class analysis of drought and famine could, in this respect, view the phenomenon among the Turkana as a class famine where the poor suffer while the rich remain largely unscathed.

6.2.2: Human losses in household.

If we adopt our earlier definition of famine borrowed from Devereux (1993) as severe food shortage which results in raising a community's death rate then one method of determining the magnitude of drought and famine is to use recorded deaths as a measurement tool. In the questionnaires, the 80 household heads were asked to name all the members of the household (if any) who died from hunger or famine during the 2005-2006 drought, or related diseases such as cholera. The sex, age, and status in the family of the dead were recorded in each case.

Table 4: Mortality in the Surveyed Households

Households Interviewed		Percentage (%)
Total number of households recording death	37	46
Total number of households recording no death	43	54

Source: Fieldwork data, 2007

As shown in Table 4, of the 80 families surveyed, 37 of them (46%) recorded at least one death claimed to have been caused by starvation or famine-related diseases during the 2005-2006 drought. The total number of deaths recorded was 95, which gave an average of 1.19 deaths per family.

Crude computation of the data gives a mortality rate of 19.83 deaths per 100 of the population. Although these are mere estimates made from the statistics, they would appear to portray quite a high death rate caused by the 2005-2006 drought and famine effects. However, the death statistics ought to be read against the background that:

i) Even in the absence of drought and famine, the infant mortality rate in the Turkana District was projected to be 220 deaths per 1000 live births by 2007 (Republic of Kenya 2002: 9). These are the children who die before attaining the age of 2 years.

ii) Deaths from natural sources were projected to be 50.3 per 1000 by 2007 (Republic of Kenya 2002: 9).

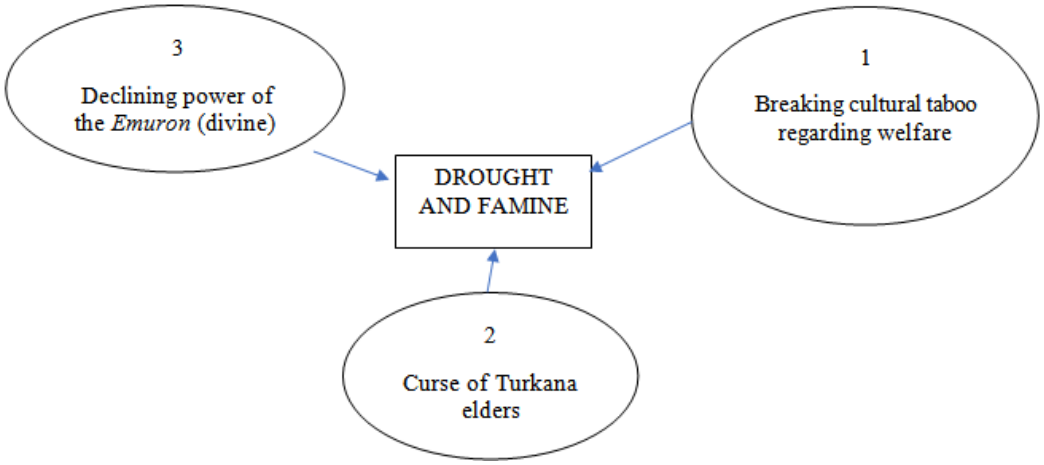
Therefore, considering the normal mortality rate of 220 deaths per 1000 live births, and deaths due to natural causes of 50.3 per 1000, one could then deduce that further human losses at the rate of 198.3 deaths per 1000 due to the 2005-2006 droughts could have had a devastating impact on Turkana people. In most cases, the parents and relatives of the famine victims provided what seemed to be valid diagnostic explanations as to the cause of deaths: starvation. Thus, starvation significantly increased the community's death rate. Essentially, this is what Devereux (1993) defines as famine. However, it is interesting to understand local people's perceptions of their situation and circumstances surrounding the occurrence of the 2005-2006 drought and famine.

6.3: Perception and contemporary cultural interpretation of drought incidences.

Having noted the impact of 2005-2006 droughts on Turkana peoples' livelihoods, the interviewees were further asked about their perceptions of their livelihood in terms of any problems they had and any changes or trends occurring over recent years, and also what forces and factors have been influencing such changes. This is what Pennings and Smidts (2000, 2003) refer to as risk perception; the local people's own interpretation of the likelihood of being exposed to the content of risk. It is argued here that a critical assessment of local people's perceptions and attitudes tell us much more about the relevance of the adaptive strategies brought into play. The crucial question asked was: What is the Turkana people's interpretation of drought and famine? Secondly, how would their interpretation of the situation determine their choice of adjustments to drought and famine? These were sometimes difficult issues to talk about, but still, informants were willing to do so. The symbolic interaction theory which this study adopted to analyze the adjustment phenomenon among the Turkana people states that such adjustments are made through cultural filters of taboos, values, personality, etc. This approach therefore develops psychological tests which use verbal responses to predetermined questions as a basis for analysis. The local people's cognitive map of reality, their cultural values and individual personalities were all taken as crucial factors determining their choices of adjustments for drought and famine in this case.

The informants interviewed initially recognized the fact that they live in a hostile environment where famine is prevalent. Apart from drought, other factors were also mentioned as the major cause of famine in the Turkana district. When informants were asked to list specifically the contemporary interpretation of the frequency and severity of drought conditions today, they offered three broad but complementary explanations. The explanations are cultural as well as historical. As seen in Figure 1, they all suggest the fact that Turkana people are aware of the socio-economic changes which have swept through the community in the last century.

Figure 1: Interpretation of the causes of drought problem



Source: Fieldwork data, 2007

The first explanation is that Turkana people broke an important cultural taboo regarding welfare. They declared tribal war on their 'elder brother' the Ngijie of Uganda. Informants stated as follows:

Tradition handed down to us from our ancestors told us that we never (and do not) fight or kill a Ngijie. It is a taboo. All our roots are found there. Stock marks are to be found there. But now they fight. No one knows who started the feud, but it is now bloody war fought with guns. It is stocks that have been bought with tears and blood of our kin that have brought a curse on us. It has burnt all our stock wealth (Household Interview 12th April 2007)

The key informants believe strongly that it is the curse from their elder brother Ngijiye that accounts for the recurrent scourges. They think these calamities are not due to purely climatic changes. Informants stressed that there are good pastures all along the Turkana borders, but that they cannot use them due to warfare and poor relations, even with their own kin the Ngijiye. To illustrate their claim, the informants pointed out that after any bloody encounters with the Ngijie resulting in the death of a Turkana, the Ngijie would always return home (Uganda), kill a bull and perform a ''mock'' burial ceremony as though the dead Turkana were a Ngijie. The significance of this in their religious practices is that they look on the Turkana not as an 'enemy' but as "kinsmen" who must be buried according to custom. The Turkana, on the other hand, do not observe a corresponding burial ceremony when they kill a Ngijie in such bloody encounters. The informants believe that this phenomenon has had cultural effects of transferring 'blood guilt' on to the Turkana: an evil spell which has caused their doom. Informants thought that in order to be prosperous again, the Turkana must make peace with the Ngijie and plead with them to lift the curse. Informants maintained as follows:

We have to live in peace with the Ngijie if we are to survive as a people. It is only when there is peace that we can regain our economic prosperity of the past (Household Interview 10th July 2007).

The second explanation by informants is that the recurrent drought and famine predicament has been caused by a curse of Turkana elders due to intergenerational conflict in the community. They told a long story which cannot be retold here in full. I shall summarize its basics. It sounds partly factual and partly myth; but as myths are part of a culture, they are therefore cultural data subject to analysis and interpretation.

The traditional rule by elders (gerontocracy) (Spencer 1965) had the unchallenged powers of moderating cattle raids so as to make them a kind of sport rather than war. Thus raids and counter raids had to be blessed and sanctioned by elders. About four generations ago, the elders refused to bless or sanction an anticipated raid because the people to be raided lived in a distant land, and to elders, it was a risky experience. The warriors, however, defied the orders of the elders not to undertake the raid. The elders tried to restrain them, but the warriors rebuked them and told them to return home. The elders felt insulted and cursed themselves, and the rebellious warriors and their generation-set. The curse was that they would live at war with their neighbours and their neighbours would not allow them to gain access to better watered pastures in their northern and western borders. Many Turkana herders would be killed in their attempts to force their way into these pasturelands.

According to informants, the elders said that the land has to be cleansed of that curse if the Turkana people were to regain their lost economic prosperity. Elders suggested that this could be done by organising a community-wide ceremony, where the generation set representing the rebellious warriors would collectively present offerings in the form of livestock to the elders representing the offended generation set. The latter would then be asked to lift the curse, for it would be in the interest of all including themselves. By the time of the

study, no cleansing ceremony had been organised, which could explain to some extent the regular occurrence of drought and famine in the Turkana District.

Lastly, the respondents attached some blame for their problems on the declining powers of the Emuron (Diviner). Since this study was concerned with drought (absence of rain), it sought to inquire into the present status of the rain maker. In the past, the most reputed Emurons were also the rainmakers (Gulliver 1951). The Emuron akuj (chief priest) possessed the mystic powers of healing, communicating with God (akuj), and inducing rain. These were the power bases of men like Ekerua of the Loima Mountains in western Turkana and Lokorio of Atatepes, which enabled them to wield a tremendous amount of religious and political influence that transcended community borders (Lamphear 1976). Responses from key informants and survey interviews on the role of Emuron (rain-maker) seemed to suggest that Emuron's mystical powers are on the decline. The respondents viewed themselves as a people without a strong spiritual leader, unlike their grandfathers whose spiritual leaders, like Lukeria, spearheaded the occupation of the land and the acquisition of the camel. They lamented that the "whiteman" destroyed the spiritual foundation of their society by hunting down and killing powerful Emurons and then introducing new religious practices. Thus, the office of the Emuron had since lost its customary mystic aura that made it so formidable in pre-literate times. Informants pointed out that the office of the Emuron remains legendary, but are currently of little practical use. Many people today, especially the youth and the educated, do not take Emurons seriously in their deliberations. The educated, for instance, campaign against the Emurons, calling them desperate opportunists interested only in making money out of dying trade.

There was, however, some evidence that in times of crisis, the Emuron is still consulted by those who still believe in his mystic powers. The Emuron also still claims to be able to predict the coming crises and advises on measures to avert them. Prayers and sacrifices to Akuj (God) are still made on Emurons' instructions. I learnt during fieldwork that the dilemma currently facing the Turkana people is that in the majority of the cases, Emurons prayers are never answered.

Approximately 30 percent of the surveyed interviewees stated that they had been alerted of the coming of the 2005-2006 drought and famine by an Emuron by the name Akiyobok Nkwatella. The majority of the respondents (70 percent) said, however, that they did not hear of the warning from Akiyobok. I realized during the field study that there was no Emuron among the Ngibelai territorial section, a fact which may partly help to explain why not many people heard of his warning and religious advice. The few who heard of the warning went through the religious rituals individually, like painting oneself with mud or performing community rites, to induce rain and avert the crisis. It was, however, in vain.

A key informant, an old man (a mzee) nearly 75 years old, led me to a religious shrine they called Akipeyare or Amuronet in the mountains where prayers had been conducted and sacrifices made to God (Akuj) when the local people heard of Akiyobok's warning and instructions. Two camels had been slaughtered and offered as sacrifices, and heaps of their bones were still at the site at the time of the visit.

This particular prayer function was led by the eldest man in the village at the time, Lomoria Kilitar, aged approximately 80 years. Lomoria died towards the end of 2006, and drought struck when he went out of his home area to look for food. Like Lomoria, the Emuron Akiyobok also died during the 2005-2006 drought. To the people, their deaths meant that the mystic powers of the Emuron had seriously declined. It was a bad omen to the people.

When further inquiries were made to hear from the people why they thought prayers were ineffectual today, the key informants stated as follows:

One reason which makes these ceremonies fail to be effective today is because of the change of things from true mediation and submission to God to the situation of hypocrisy. These days, people who come to the ceremonies are motivated more by the desire to eat the sacrifice rather than serious prayer, hence the slaughter of camels instead of goats. But still, people go home hungry and say they did not eat enough. So it is not prayer, it is feasting. It is all hypocrisy. And the Gods refuse to be fooled as the people do not humble themselves before them. Moreover, after the prayers, many people return to their Manyattas and commit various sins, for example, wife beating, which angers the Gods. That discipline that would make prayers effective is no longer forthcoming (Key informant Interview 17th February 2007)

6.4: Identity crisis.

Due to the serious impact of the 2005-2006 drought and famine as discussed above, Turkana people saw themselves as having lost control over their destiny. They see a society caught in a crisis as it drifts into a gloomy future. Even their religious and cultural practices for averting droughts and famine have become increasingly obsolete due to the declining powers of their spiritual leaders (Emuron). They were caught up in a serious identity crisis. A key informant put their predicament into the following poetic words:

We are not Turkana
PAUSE
We-A-R-E not Turkana

The people you see here receiving famine relief food are not Turkana
The Turkana are up in the mountains attending to their stock
Those who are here are destitute…MAA-SKINI
People have lost their Turkana identity
To be Turkana means:
To own livestock,
To be well fed in milk, meat and blood,
To have wife and children who bathe in milk and ghee,
To be held in high regard as manager of livestock,
Today we are not men, we are animals.
We are now being fed by government, and we
diarrhoea, and our children develop over-grown bellies.
WE ARE NOT TURKANA (Key Informant Interview 6th
February 2007, Morulem Village).

I found this portrait of the changing Turkana pastoral life important to this study because it kept recurring in subsequent interviews. It represented a consensus view about the economic problems facing the local people. The Turkana despise relief food and strongly feel that they could do better if they could have a strong network maintained through exchange of animals. For
instance, weeks later, another key informant projected the same image of a changing pastoral life using slightly different words. He said as follows:

A Turkana has three legs.
Two human legs and the third is social – his livestock.
The third leg is the most important in human relations.
Remove his livestock and he is a cripple
Without livestock, you cannot mix freely with other
colleagues and peers.
You cannot ask for food and be given with a clean
heart.
You cannot entertain friends and relatives
YOU ARE NOTHING (Key Informant Interview 4th May
2007)

Therefore, it is argued that the magnitude of the 2005-2006 drought and famine seemed to have had serious psychological effects on the Turkana people. The heavy livestock and human loses were emotionally disturbing. The psychological stress became more intense due to starvation and loss of human life, particularly children. What distressed the people most gravely was the fact that over the years, they have witnessed a systematic erosion of pastoral values, ideology, and lifestyle.

6.8: Conclusion

This paper has presented the findings of interviews with key informants and household heads. It reveals that the Turkana pastoral economy has become highly vulnerable to droughts and famine. During the 2005-2006 drought periods, the Turkana lost many of their livestock and many people were rendered destitute. The people saw themselves as caught up in a Crisis as it drifts into a gloomy future. There was also evidence that the 2005-2006 drought and famine led to deaths from starvation, judging from the high death rates during that period.

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